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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,167	07/02/2007	Ian V.J. Archer	HGX-003.01	4067

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FOLEY HOAG, LLP  
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EXAMINER
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MEKHLIN, ELI S

ART UNIT	PAPER NUMBER
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4191

MAIL DATE	DELIVERY MODE
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12/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,167	<b>Applicant(s)</b> ARCHER ET AL.	
	<b>Examiner</b> ELI MEKHLIN	<b>Art Unit</b> 4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/18/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This is the first office action on the merits.
2. The Preliminary Amendment filed August 18, 2006, has been entered. Applicant amended claims 1-9 and added claims 10-20, all of which are pending before the Office for review.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over WEISS et al. (U.S. Patent No. 6,756,024) in views of MORRISON et al. (U.S. Patent No. 4,206,191).

7. With respect to claim 1, WEISS teaches a two-step lithium amide preparation process that uses lithium metal and ammonia to form a bronze, which is then reacted, in a second step, with a 1,3-diene or aryl olefin to yield a lithium amide. ABSTRACT. WEISS does not require that the reaction temperature is maintained at or below the boiling point of ammonia. However, MORRISON, which deals with a catalyst based lithium amide production process, teaches that the lithium amide preparation reaction is best performed between 0°C to -60°C, which is below the boiling point of ammonia, because doing so allows for better dissolution of lithium in the solvent. Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person having ordinary skill in the art would modify the lithium amide process taught in WEISS in view of the temperature conditions in MORRISON because MORRISON teaches that mixing ammonia and lithium below ammonia's boiling point allows for the complete dissolution of lithium, which helps drive the reaction to completion.

8. With respect to claim 2, WEISS teaches that the ammonia is brought into contact with lithium by adding the ammonia to lithium. Col. 2, Lines 29-32.

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9. With respect to claim 3, WEISS teaches that the 1,3-diene or aryl olefin can be one of either butadiene, isoprene piperylene, dimethylbutadiene, hexadiene, styrene, methyl styrene, naphthalene or anthracene. Col. 1, Lines 47-49.
10. With respect to claim 4, WEISS teaches that the 1,3-diene or aryl olefin can be one of either styrene or methyl styrene. Col. 1, Lines 47-49.
11. With respect to claim 5, WEISS teaches that the solvent for the reaction can be one of pentane, cyclopentane, THF, dioxan, or glycol ether. Col. 1, Lines 50-59.
12. With respect to claim 6, WEISS teaches that the ammonia is added to lithium in a 4:1 ratio. Col. 2, Lines 29-31.
13. With respect to claim 7, WEISS does not require that the reaction take place at a temperature range of  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$ . However, MORRISON teaches that the lithium amide forming reaction takes place at a temperature of  $-40^{\circ}\text{C}$ , which is within the claimed range. Col. 7, Lines 62-65. MORRISON teaches that this temperature is important because it prevents ammonia from unduly boiling, which would be dangerous. Col. 8, Lines 5-10. Accordingly, a person having ordinary skill in the art, would modify WEISS lithium amide process with the temperature conditions taught in MORRISON because MORRISON teaches that using sub-zero reaction conditions does not impede the reaction progress while allowing for safer reaction conditions.
14. With respect to claim 8, WEISS teaches that ammonia can be removed via reduced-pressure evaporation at ambient temperature. Col. 2, Lines 55-56. The lithium amide composition recovered by WEISS is  $\text{LiNH}_2$  in a lithium amide to ammonia ratio of 1:3. Col. 1, Figure 1 (unlabeled figure in middle of column). WEISS does not teach that

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the ambient temperature is between  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$ . However, MORRISON teaches that the lithium amide reaction can be carried out at  $-40^{\circ}\text{C}$ . Col. 7, Lines 62-65.

Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the reduced-pressure evaporation at a temperature between  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$  because doing simply involves applying a known technique to a known method to yield predictable results.

15. With respect to claim 9, WEISS uses the procedure to prepare  $\text{LiNH}_2$ , a lithium amide. Col. 1, Figure 1.

16. With respect to claim 10, WEISS does not teach that both steps of the reaction procedure can be performed at temperatures of  $-65^{\circ}\text{C}$  to  $-35^{\circ}\text{C}$ . However, MORRISON teaches that the temperature range of the reaction can vary from  $-60^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ . Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the entire reaction at a temperature between  $-65^{\circ}\text{C}$  to  $-35^{\circ}\text{C}$  because doing simply involves applying a known technique to a known method to yield predictable results.

17. With respect to claim 11, WEISS does not teach that both steps of the reaction procedure can be performed at a temperature of  $-40^{\circ}\text{C}$ . However, MORRISON teaches that the temperature range of the reaction can vary from  $-60^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ . Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in

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MORRISON and conduct the entire reaction at a temperature of  $-40^{\circ}\text{C}$  because doing simply involves applying a known technique to a known method to yield predictable results.

18. With respect to claim 12, WEISS teaches that ammonia can be removed via reduced-pressure evaporation at ambient temperature. Col. 2, Lines 55-56. The lithium amide composition recovered by WEISS is  $\text{LiNH}_2$  in a lithium amide to ammonia ratio of 1:3. Col. 1, Figure 1 (unlabeled figure in middle of column). WEISS does not teach that the ambient temperature is between  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$ . However, MORRISON teaches that the lithium amide reaction can be carried out at  $-40^{\circ}\text{C}$ . Col. 7, Lines 62-65.

Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the reduced-pressure evaporation at a temperature between  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$  because doing simply involves applying a known technique to a known method to yield predictable results.

19. With respect to claim 13, WEISS teaches that the solvent for the reaction can be one of pentane, cyclopentane, THF, dioxan, or glycol ether. Col. 1, Lines 50-59.

20. With respect to claim 14, WEISS teaches that the solvent for the reaction can be one of pentane, cyclopentane, THF, dioxan, or glycol ether. Col. 1, Lines 50-59.

21. With respect to claim 15, WEISS does not teach that both steps of the reaction procedure can be performed at temperatures of  $-78^{\circ}\text{C}$  to  $-33^{\circ}\text{C}$ . However, MORRISON teaches that the temperature range of the reaction can vary from  $-60^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ . Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would

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modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the entire reaction at a temperature between -60°C to 0°C because doing simply involves applying a known technique to a known method to yield predictable results.

22. With respect to claim 16, WEISS does not teach that both steps of the reaction procedure can be performed at temperatures of -78°C to -33°C. However, MORRISON teaches that the temperature range of the reaction can vary from -60°C to 0°C. Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the entire reaction at a temperature between -60°C to 0°C because doing simply involves applying a known technique to a known method to yield predictable results.

23. With respect to claim 17, WEISS does not teach that both steps of the reaction procedure can be performed at temperatures of -78°C to -33°C. However, MORRISON teaches that the temperature range of the reaction can vary from -60°C to 0°C. Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the entire reaction at a temperature between -60°C to 0°C because doing simply involves applying a known technique to a known method to yield predictable results.

24. With respect to claim 18, WEISS does not teach that both steps of the reaction procedure can be performed at temperatures of -78°C to -33°C. However, MORRISON



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teaches that the temperature range of the reaction can vary from  $-60^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ . Col. 4, Lines 66-68, Col. 5, Lines 1-3. Accordingly, a person of ordinary skill in the art would modify the reaction procedure taught in WEISS in view of the temperature conditions taught in MORRISON and conduct the entire reaction at a temperature between  $-60^{\circ}\text{C}$  to  $0^{\circ}\text{C}$  because doing simply involves applying a known technique to a known method to yield predictable results.

25. With respect to claim 19, the lithium amide procedure taught by WEISS yields an  $\text{LiNH}_2$  amide that is in a 1:3 ratio with ammonia. Col. 1, Figure 1 (unlabeled in middle of column).

26. With respect to claim 20, the lithium amide procedure taught by WEISS yields an  $\text{LiNH}_2$  amide that is in a 1:3 ratio with ammonia. Col. 1, Figure 1 (unlabeled in middle of column).

### ***Conclusion***

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELI MEKHLIN whose telephone number is (571)270-7597. The examiner can normally be reached on 5/4/9.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on 571-272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eli S. Mekhlin  
/Barbara L. Gilliam/  
Supervisory Patent Examiner, Art Unit 4191

December 17, 2008